



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title: PROGRAMMABLE THERMOSTAT
INCORPORATING A LIQUID CRYSTAL
DISPLAY SELECTIVELY PRESENTING
ADAPTABLE SYSTEM MENUS INCLUDING
CHANGEABLE INTERACTIVE VIRTUAL
BUTTONS

Inventor(s): Howard Rosen

Serial No.: 10/654,235

Filing Date: 9/3/2003

Group No.

Examiner:

Attorney Docket No.: 0307.1A4

INFORMATION DISCLOSURE
STATEMENT - REMARKS

COMMISSIONER FOR PATENTS

PO Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure under 37 C.F.R. 1.56 and pursuant to 37 C.F.R. 1.97-1.98, Applicant hereby notifies the U.S. Patent and Trademark Office of the documents listed on the attached Form PTO- PTO/SB/08A. Except as noted, one copy of the cited document is submitted herewith.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant reserves the right to dispute any of the listed documents as prior art during examination. Further, Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application. Furthermore, the submission of this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other material information may exist. Applicant respectfully submits that all pending claims are patentable over the foregoing references, alone or in combination.

Although further described below, the following is brought more particularly to the examiner's attention. The reference titled "Cardio manual" discloses the broad idea of incorporating a dot-matrix liquid crystal display with touchscreen having virtual buttons responsive to a user's touch. Most relevant are pages 7, 16, 23, and 45 through 47.

The following are US patents:

4,224,615 discloses a generalized form of a touch screen for user input.

5,086,385 discloses that a personal computer may receive inputs such as temperature in its operation as a home automation system having a touchscreen interface.

5,170,935 describes using touchscreen up or down arrows to change comfort settings on a thermostat.

- 5,818,428 describes a touch screen for a PC or home appliance that can be changed in appearance after purchase by a user to make the interface more acceptable to the user.
- 6,059,195 discloses a home automation system suggesting use of a touchscreen for a portion of the user interface (copy not submitted).
- 6,192,282 discloses a home automation system including connections from a central control device to remote thermostats, where the central control device comprises a touchscreen as part of the user interface.
- 6,285,912 discloses a thermostat with what is described as a "touch panel" consisting of mechanical buttons.
- 6,330,806 discloses a thermostat suggesting that a touchscreen is one of several forms of user interfaces (copy is not submitted).
- 6,344,861, with an effective filing date of 1993, discloses that a handheld device such as a PDA may be used wirelessly to form an interface with a thermostat. (US Patent Nos. 5,866,697 and 6,020,881 are described in the '861 patent – copies not submitted).
- 6,478,233 discloses a thermostat implementing an algorithm for saving energy in the operation of HVAC equipment which in addition incorporates a touchscreen as part of a user interface.
- 6,595,430 discloses a graphical representation for scheduling control setpoints for a thermostat, optionally via a touchscreen.
- 6,621,507 discloses thermostat with a touchscreen interface for selection of language used for communication with the user.

The following are foreign patents or publications:

- DE 3334117.6 published in 1985 discloses input of schedules of temperature control setpoints over a period of up to 72 hours by way of touching a light pen to a graphic pictorial on a display showing a graph of temperature versus time.
- EP 0985994 discloses using transparent overlays on a touch sensitive layer to create different user interfaces with a touch pad. One of the user interfaces is used to input control setpoints for a thermostat.
- WO 97/11448 discloses input of schedules of temperature control setpoints for an individual room over a period of up to 24 hours by way of touching a graphic pictorial on a display showing a graph of temperature versus time (US Patent No. 6,140,987 is described in the '448 publication – copy not submitted).
- WO 97/39392 discloses a home automation system with a touchscreen interface .

The following are publications:

1. ADI, "Leopard User Manual," 93 pages, 2001. – discloses a home automation control center that allows a user to use a personal computer with proprietary software to develop a touchscreen pictorial for the touchscreen on the control center. The device is capable of displaying temperature without control of space conditioning equipment.
2. Business Wire, "MicroTouch Specialty Products Group to Capitalize on Growing Market for Low-Cost Digital Matrix Touchscreens," p1174 (2 pages), January 6, 1999. – discloses that a touchscreen panel can be used to control HVAC equipment.
3. DeKoven et al., "Designing Collaboration in Consumer Products," 2 pages,

2001. Freudenthal et al., "Communicating extensive smart home functionality to users of all ages: the design of a mixed-initiative multimodal thermostat-interface," pp. 34-39, March 12-13, 2001. – discloses research using a touchscreen and speech input to determine user response to programmable thermostats and their useful interfaces.

4. Honeywell News Release, "Honeywell's New Sysnet Facilities Integration System For Boiler Plant and Combustion Safety Processes," 4 pages, December 15, 1995. – describes using touchscreen controls for boiler operation.
5. Honeywell, "W7006A Home Controller Gateway User Guide," 31 pages, July 2001. – discloses a home automation device with a mouse-driven indicator.
6. "High-tech options take hold in new homes - 200-08-28 - Dallas Business Journal," <http://bizjournals.com/dallas/stories/2000/08/28/focus4>, 3 pages, dated August 28, 2000, printed August 19, 2004. – discloses a home management system using a touchscreen panel and icons.
7. "Product Review - Philips Pronto Remote Control," [http://hometheaterhifi.com/volume 6 2/philipsprontoremotecontrol.html](http://hometheaterhifi.com/volume%206%20philipsprontoremotecontrol.html), 5 pages, dated May 1999, printed August 20, 2004. – discloses a handheld, "universal learning remote" device entirely based on a touchscreen for communicating control signals to entertainment devices.
8. [http://www.cc.gatech.edu/computing/classes/cs6751 94 fall/2roupc/climate-2/node 1 .html](http://www.cc.gatech.edu/computing/classes/cs6751%20fall/2roupc/climate-2/node%201.html), "Contents," 53 pages, printed September 20, 2004. – discloses student research into using a touchscreen as part of a user interface for a thermostat, among other devices.
9. "HAI Company Background," [http://www.homeauto.com/AboutHAI/aboutthai main.htm](http://www.homeauto.com/AboutHAI/aboutthai%20main.htm), 2 pages, printed August 19, 2004. – discloses that a touchscreen can be operated in a programmable thermostat.
10. Cardio Manual, available at [http://www.secant.ca/En/Documentation/Cardio2é-Manual.pdf](http://www.secant.ca/En/Documentation/Cardio2%C3%A9-Manual.pdf), Cardio Home Automation Inc., 55 pages, printed September 28, 2004. – discloses a dot-matrix touchscreen thermostat with multiple screens for a user interface that can accomplish, among other things, scheduling multiple setpoints in a seven day period. Most important, page 7 of this reference discloses that pressing a virtual button on the touchscreen interface can cause the legends and functions to change only for virtual buttons other than the one pressed.
11. "RC X10 Automation Forum: Control your Heating and Cooling System with Pronto(1/1)," [http://www.remotecentral.com/cgi-bin/lmboard/lrc-x 1 0/thread.c~i? 12](http://www.remotecentral.com/cgi-bin/lmboard/lrc-x%201%20thread.c~i?12), 2 pages, dated April 23, 1999, printed August 20, 2004. – discloses that a Pronto controller can send X-10 signals on an AC powerline to thermostats adapted to receive such signals.

Respectfully submitted,

Dated: February 4, 2005

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Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

of

Application Number

Filing Date**First Named Inventor**

Group Art Unit

Examiner Name

Attorney Docket Number

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T2
		<p>1. ADI, "Leopard User Manual," 93 pages, 2001.</p> <p>2. Business Wire, "MicroTouch Specialty Products Group to Capitalize on Growing Market for Low-Cost Digital Matrix Touchscreens," p1174 (2 pages), January 6, 1999.</p> <p>3. DeKoven et al., "Designing Collaboration in Consumer Products," 2 pages, 2001.</p> <p>Freudenthal et al., "Communicating extensive smart home functionality to users of all ages: the design of a mixed-initiative multimodal thermostat-interface," pp. 34-39, March 12-13, 2001.</p> <p>4. Honeywell News Release, "Honeywell's New Sysnet Facilities Integration System For Boiler Plant and Combustion Safety Processes," 4 pages, December 15, 1995.</p> <p>5. Honeywell, "W7006A Home Controller Gateway User Guide," 31 pages, July 2001.</p> <p>6. "High-tech options take hold in new homes - 200-08-28 - Dallas Business Journal," http://bizjournals.com/dallas/stories/2000/08/28/focus4, 3 pages, dated August 28, 2000, printed August 19, 2004.</p> <p>7. "Product Review - Philips Pronto Remote Control," http://hometheaterhifi.com/volume62/philipsprontoremotecontrol.html, 5 pages, dated May 1999, printed August 20, 2004.</p> <p>8. http://www.cc.gatech.edu/computing/classes/cs675194fall2roupc/climate-2/node1.html, "Contents," 53 pages, printed September 20, 2004.</p> <p>9. "HAI Company Background," http://www.homeauto.com/AboutHAI/abouthai_main.htm, 2 pages, printed August 19, 2004.</p> <p>10. Cardio Manual, available at http://www.secant.ca/En/Documentation/Cardio26-Manual.pdf, Cardio Home Automation Inc., 55 pages, printed September 28, 2004.</p> <p>11. "RC X10 Automation Forum: Control your Heating and Cooling System with Pronto(1/1)," http://www.remotecentral.com/cgi-bin/lmboardlrc-x10/thread.c-i? 12, 2 pages, dated April 23, 1999, printed August 20, 2004.</p>	

Examiner
Signature

Date _____

Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

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